



FIG 1
PRIOR
ART

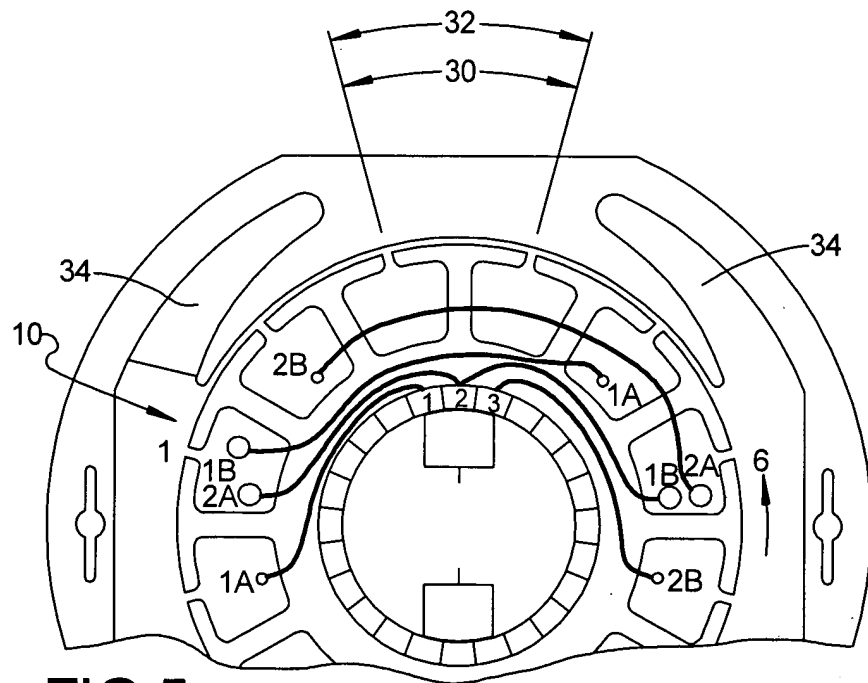
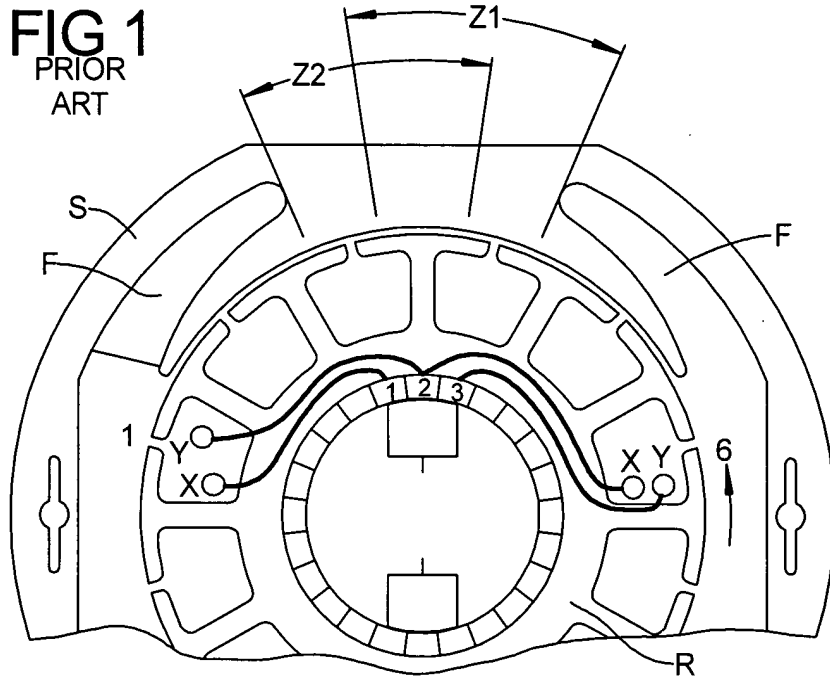
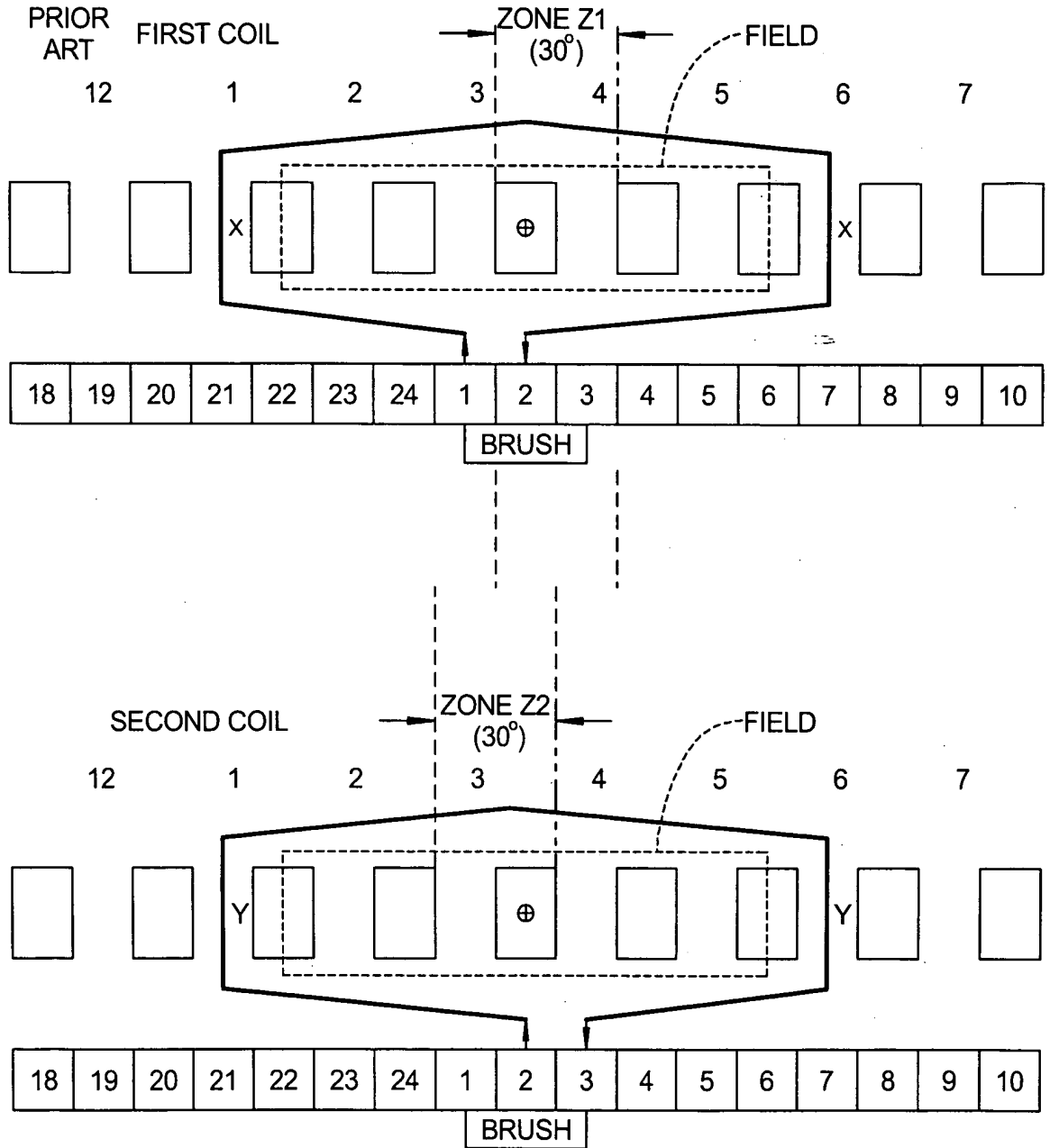


FIG 5

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FIG 1A

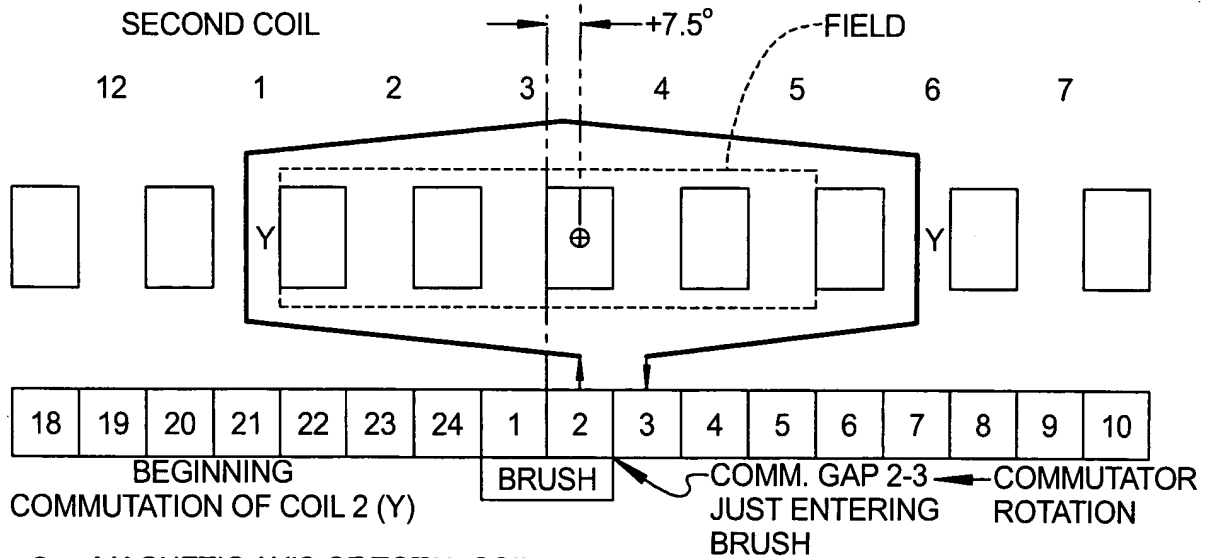
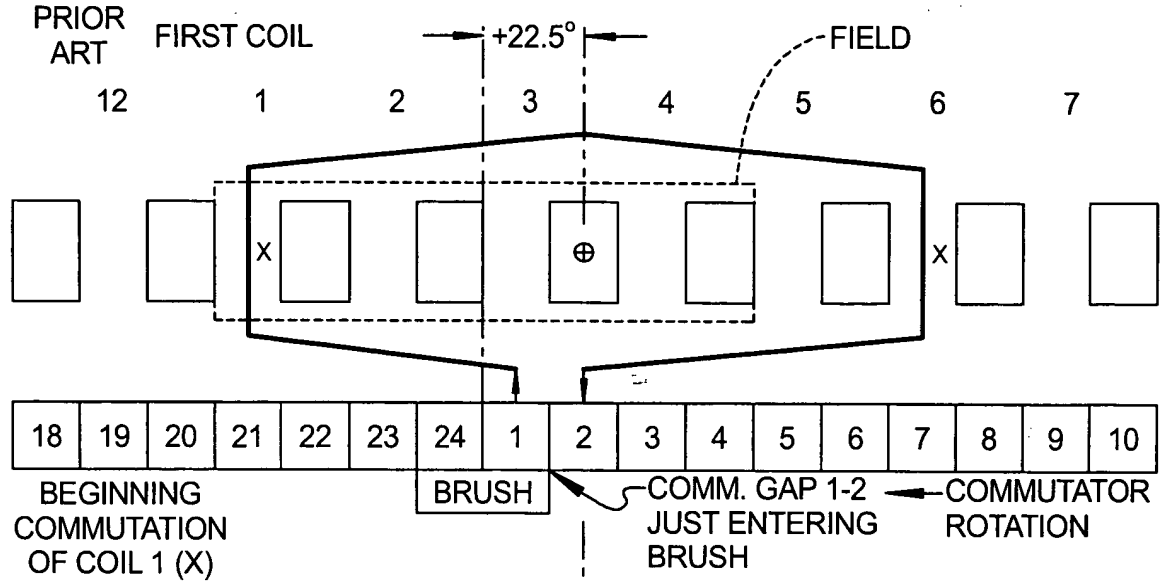


- ⊕ MAGNETIC AXIS OF TOTAL COIL
- — — — — AXIS OF FIELD POLE AND BRUSH
- — — — — POSITION OF MAGNETIC AXIS AT START OF COMMUTATION
- — — — — POSITION OF MAGNETIC AXIS AT END OF COMMUTATION

FIG 1B
PRIOR ART

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FIG 1C



⊕ MAGNETIC AXIS OF TOTAL COIL

— — — — — AXIS OF FIELD POLE AND BRUSH

— — — — — POSITION OF MAGNETIC AXIS AT START OF COMMUTATION

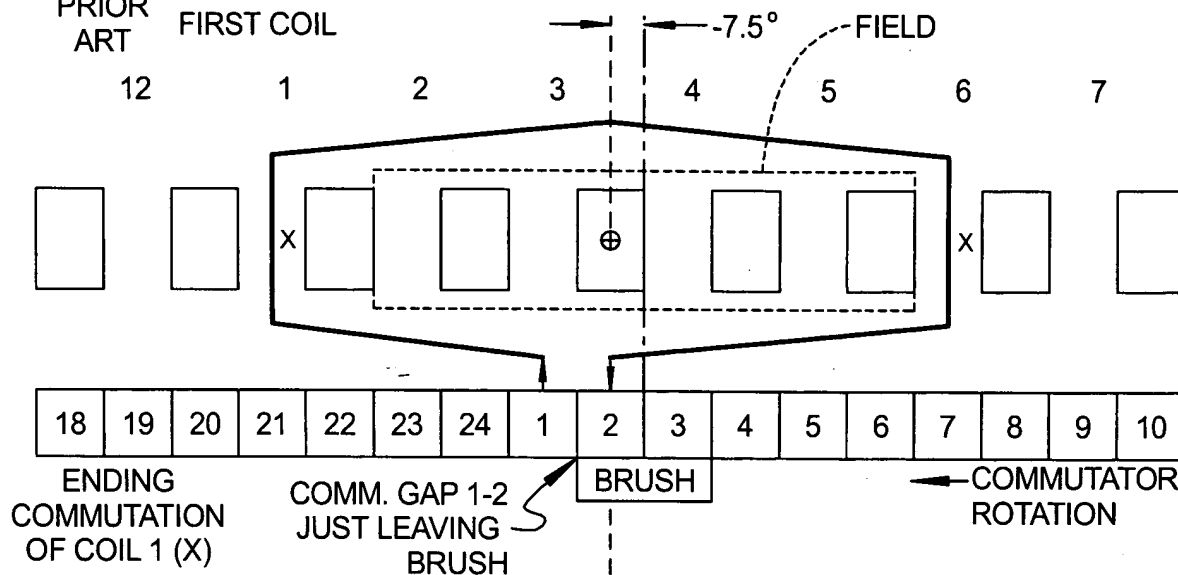
— — — — — POSITION OF MAGNETIC AXIS AT END OF COMMUTATION

FIG 1D

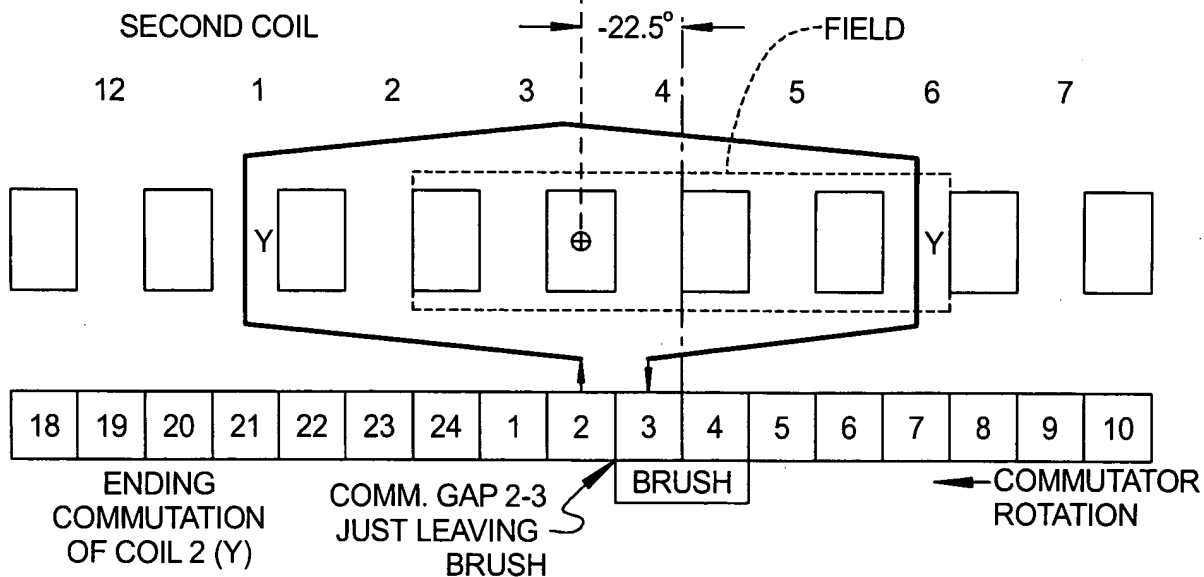
PRIOR
ART

PRIOR
ART

FIRST COIL



SECOND COIL



⊕ MAGNETIC AXIS OF TOTAL COIL

— - — - - AXIS OF FIELD POLE AND BRUSH

— · — · — · — POSITION OF MAGNETIC AXIS AT START OF COMMUTATION

----- POSITION OF MAGNETIC AXIS AT END OF COMMUTATION

FIG 1F

PRIOR
ART

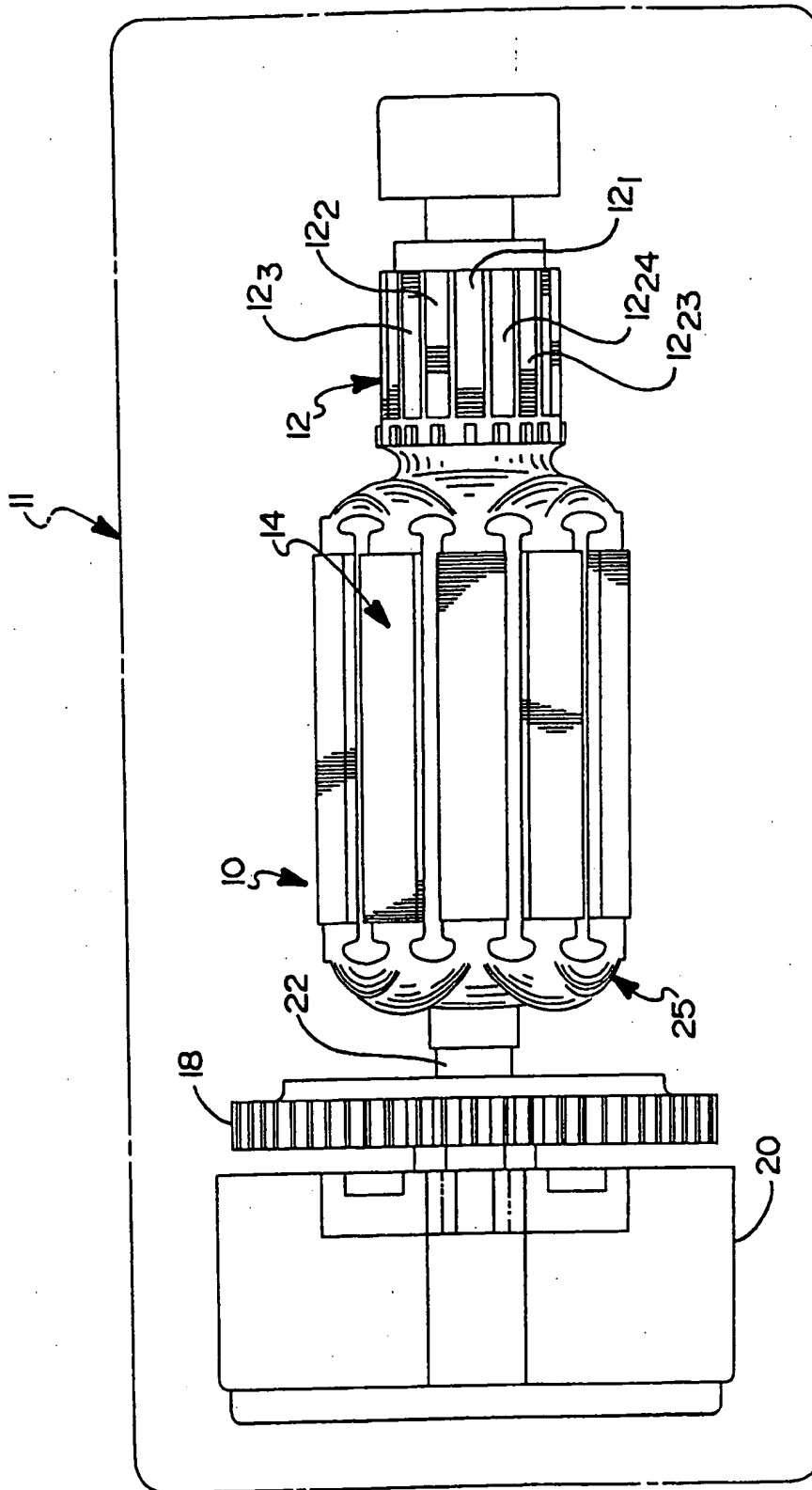
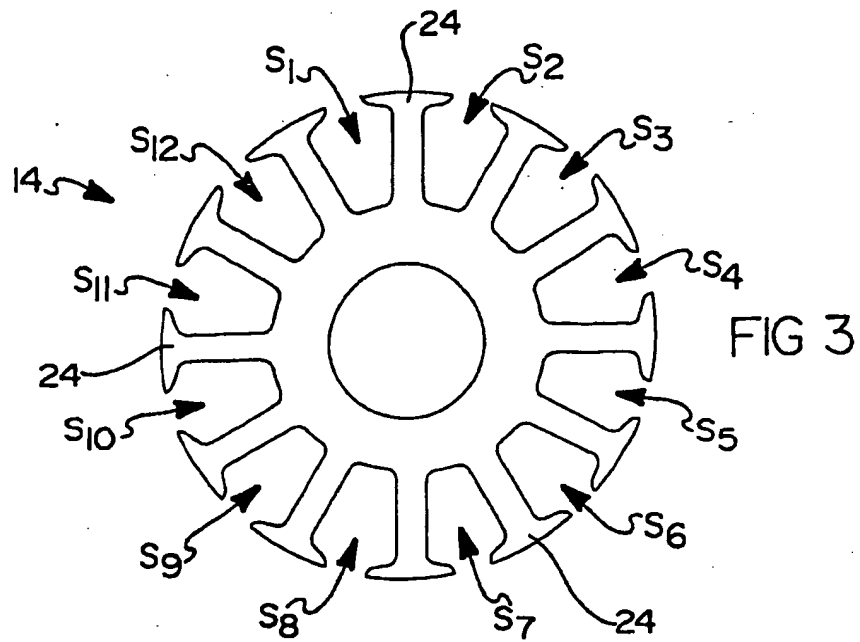
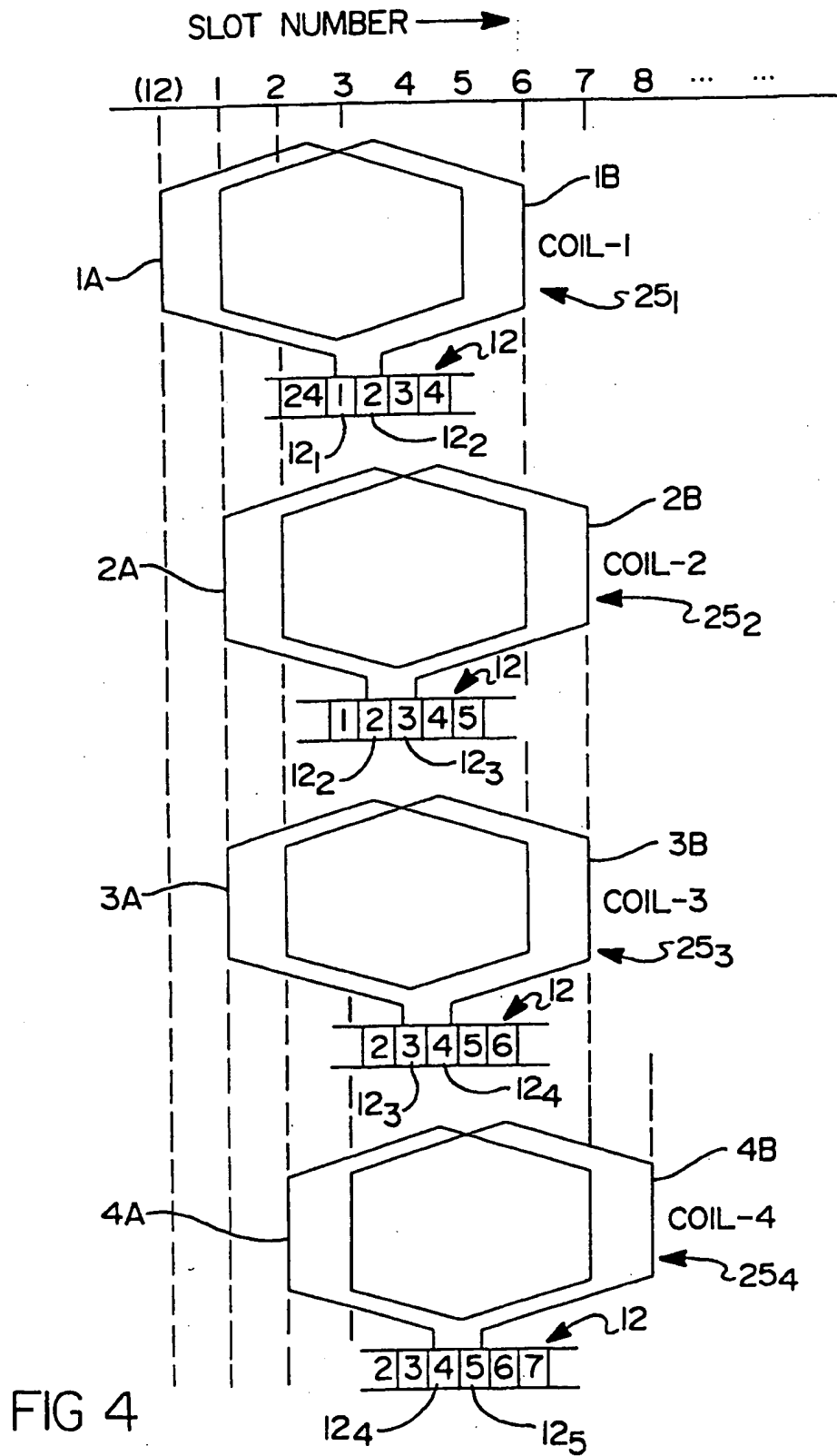


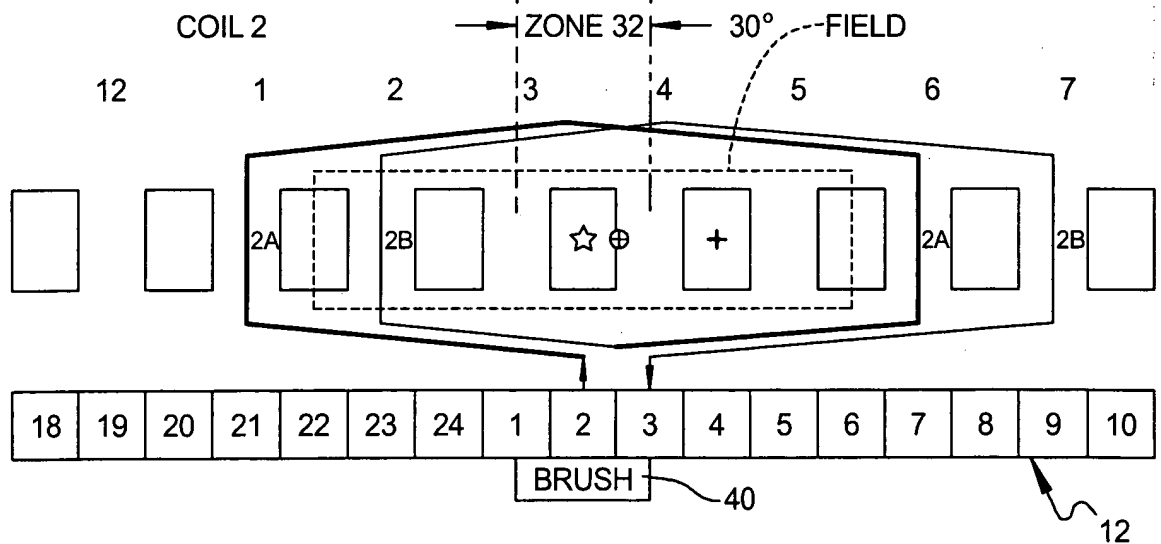
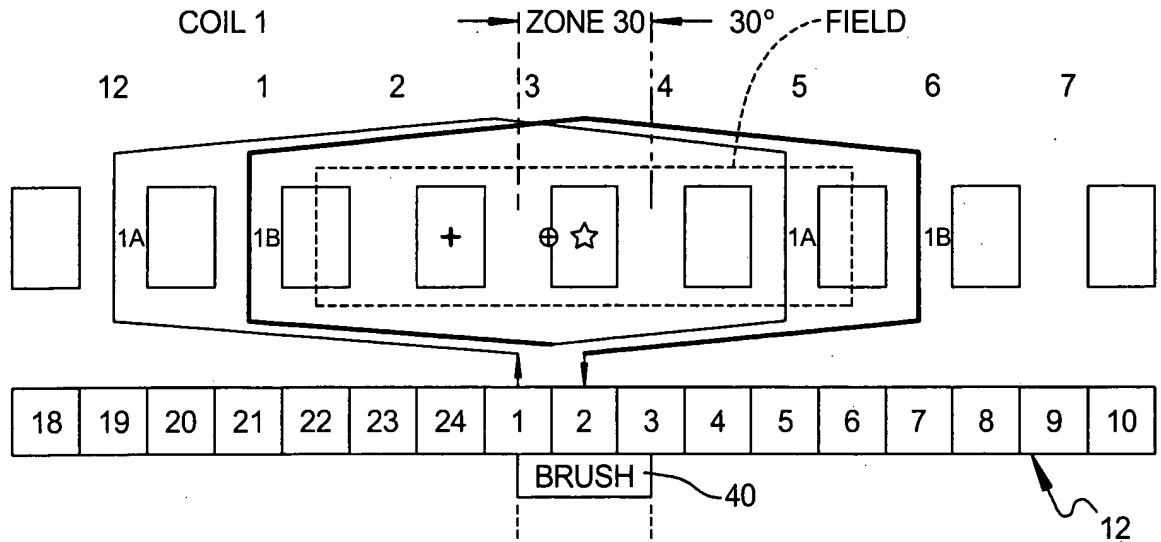
FIG 2





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FIG 5A

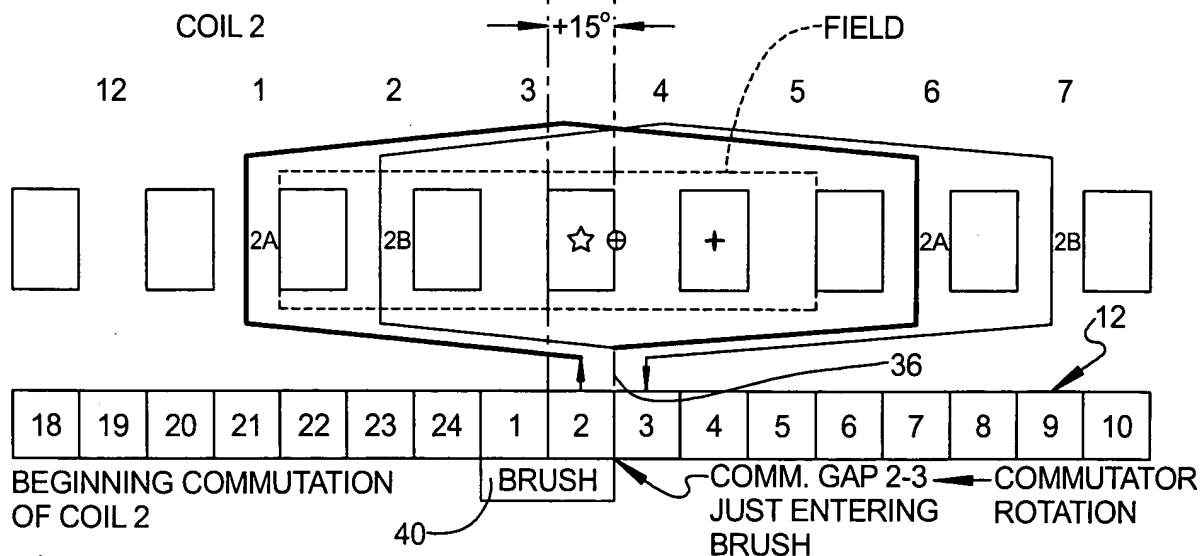
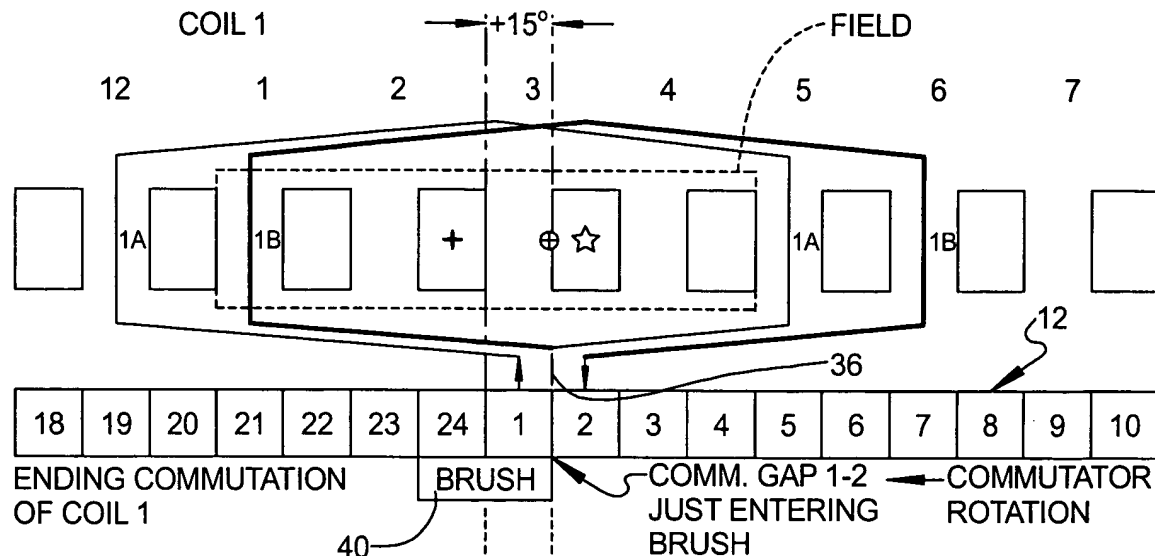


- ☆ MAGNETIC AXIS OF LARGER SUBCOIL
- + MAGNETIC AXIS OF SMALLER SUBCOIL
- ⊕ MAGNETIC AXIS OF TOTAL COIL (RESULTANT)
- AXIS OF FIELD POLE AND BRUSH
- POSITION OF MAGNETIC AXIS AT START OF COMMUTATION
- POSITION OF MAGNETIC AXIS AT END OF COMMUTATION

FIG 6A

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FIG 5B



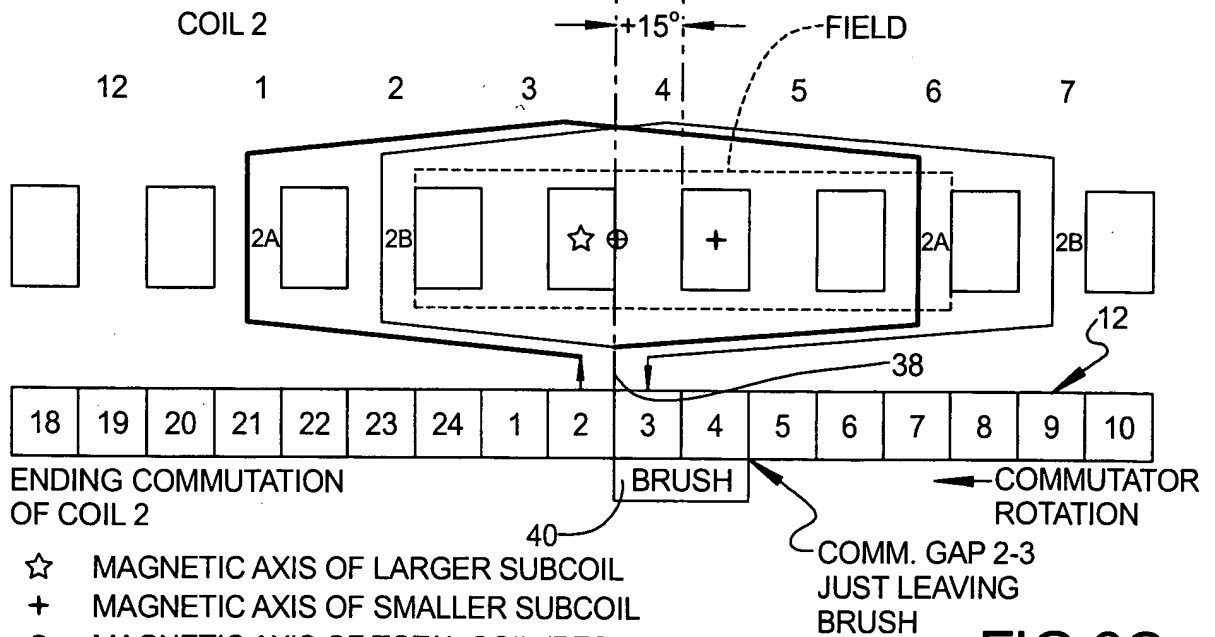
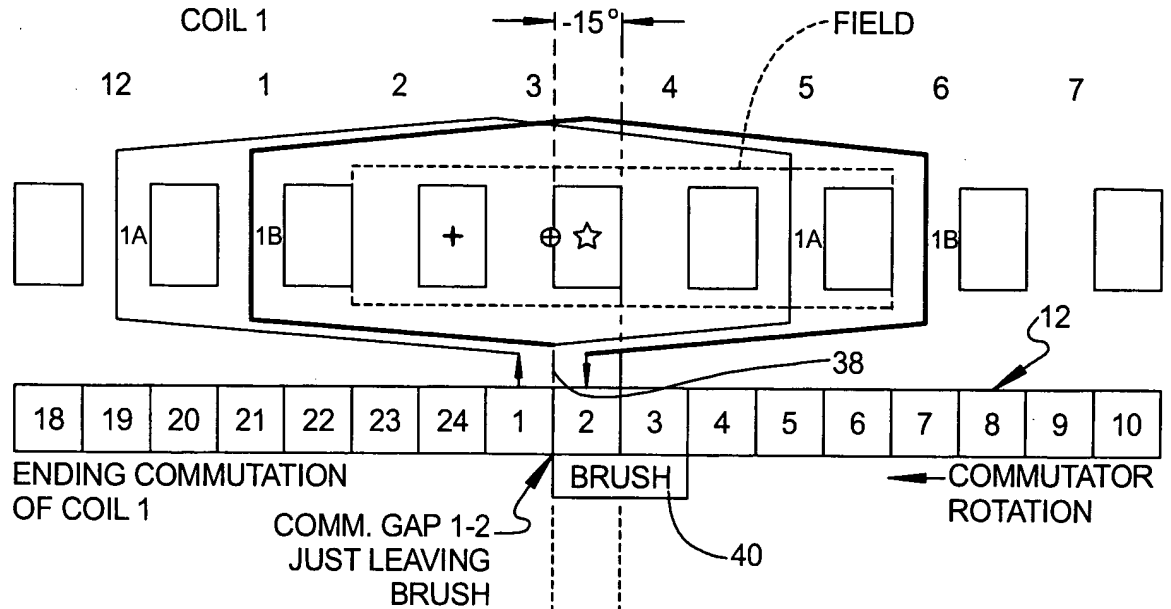
- ☆ MAGNETIC AXIS OF LARGER SUBCOIL
- + MAGNETIC AXIS OF SMALLER SUBCOIL
- ⊕ MAGNETIC AXIS OF TOTAL COIL (RESULTANT)

- — — — — AXIS OF FIELD POLE AND BRUSH
- — — — — POSITION OF MAGNETIC AXIS AT START OF COMMUTATION
- — — — — POSITION OF MAGNETIC AXIS AT END OF COMMUTATION

FIG 6B

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FIG 5C



- ☆ MAGNETIC AXIS OF LARGER SUBCOIL
- + MAGNETIC AXIS OF SMALLER SUBCOIL
- ⊙ MAGNETIC AXIS OF TOTAL COIL (RESULTANT)

- — — — — AXIS OF FIELD POLE AND BRUSH
- POSITION OF MAGNETIC AXIS AT START OF COMMUTATION
- POSITION OF MAGNETIC AXIS AT END OF COMMUTATION

FIG 6C